

AMENDMENTS TO THE CLAIMS:

Please cancel claims 130 and 131 without prejudice or disclaimer.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-22. (Canceled)

23. (Currently Amended) A mask for delivering breathable gas to a user, comprising:

a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;

a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion constructed and arranged to attach to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask and the user's face; and

a headgear constructed and arranged to attach the mask shell to the user, said headgear including at least one headgear strap;

wherein the gusset portion is constructed and arranged such that it can be selectively moved within a range of displacement to be set at a distance between the mask shell and the cushion, the gusset portion defining a gusset area exposed to the supply of pressurized breathable gas in use such that the supply of pressurized breathable

gas acting on the gusset area provides a component of a contact force F_c of the cushion on the user's face, and

wherein the mask shell, gusset portion, cushion and headgear are structured and arranged with respect to one another in use so that the force F_c is maintained in approximately constant proportion to the pressure of the supply of pressurized breathable gas, and a total force of the mask on the face F_m is maintained within a range of about 35-108 grams per gf/cm^2 pressure of the supply of pressurized breathable gas to thereby maintain the seal between the mask and the user's face over an operating pressure range of the mask, including a minimum pressure of the operating pressure range, without adjusting the headgear strap.

24. (Original) A mask for delivering breathable gas to a patient as in claim 23, wherein the force F_m is maintained within a range of about 40-88 grams per gf/cm^2 pressure of the supply of pressurized breathable gas.

25. (Original) A mask for delivering breathable gas to a patient as in claim 24, wherein the force F_m is maintained within a range of about 50-88 grams per gf/cm^2 pressure of the supply of pressurized breathable gas.

26. (Original) A mask for delivering breathable gas to a patient as in claim 25, wherein the operating pressure range is about 4-25 gf/cm^2 .

27. (Original) A mask for delivering breathable gas to a patient as in claim 26, wherein the expansion and contraction of the gusset portion permits a seal to be

maintained between the cushion and the user's face within a range of about plus and minus 8 degrees angular displacement of the mask shell with respect to the user's face.

28. (Original) A breathable gas mask arrangement as in claim 23, wherein the gusset portion includes a single gusset having a flexible sidewall with a generally triangular cross-section when not exposed to the supply of pressurized breathable gas that balloons to a generally rounded cross-section when exposed to the supply of pressurized breathable gas.

29. (Original) A breathable gas mask arrangement as in claim 23, wherein the gusset portion includes a sidewall having a thickened cross-section at a base of the sidewall.

30. (Original) A breathable gas mask arrangement as in claim 29, wherein the thickened portion has a generally uniform thickness.

31. (Original) A breathable gas mask arrangement as in claim 29, wherein the gusset portion includes a sidewall having a cross-sectional thickness tapering from a thickened base portion to a thinner portion.

32. (Original) A breathable gas mask arrangement as in claim 23, and further including a generally rigid backstop attached to the mask shell for contacting a first sidewall portion of the gusset portion to limit movement of the first sidewall portion.

33. (Original) A breathable gas mask arrangement as in claim 32, wherein the generally rigid backstop extends around substantially an entire periphery of the gusset portion.

34-124. Canceled

125. (Previously Presented) A mask for delivering breathable gas to a patient as in claim 23, wherein the mask is a nasal mask.

126. (Previously Presented) A mask for delivering breathable gas to a patient as in claim 23, wherein the mask is a CPAP mask.

127. (Previously Presented) A mask system for delivering breathable gas to a user, comprising:

a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;

a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion constructed and arranged to attach to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask and the user's face; and

a headgear constructed and arranged to attach the mask shell to the user, said headgear including length adjustable headgear straps;

wherein, by selectively varying the length of the headgear straps upon initial set up of the mask system, the gusset portion is movable within a range of displacement to be set at a distance between the mask shell and the cushion, the gusset portion defining a gusset area exposed to the supply of pressurized breathable gas in use such that the

supply of pressurized breathable gas acting on the gusset area provides a component of a contact force F_c of the cushion on the user's face, and

wherein the mask shell, gusset portion, cushion and headgear are structured and arranged with respect to one another in use so that the force F_c is maintained to at least equal a minimum sealing force for the seal between the user and the mask at a minimum operating pressure of the mask.

128. (Currently Amended) A mask for delivering breathable gas to a user, comprising:

a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;

a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion constructed and arranged to attach to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask and the user's face; and

a headgear constructed and arranged to attach the mask shell to the user, said headgear including at least one headgear strap;

wherein the gusset portion is constructed and arranged such that it can move within a range of displacement to be set at a distance between the mask shell and the cushion, the gusset portion defining a gusset area exposed to the supply of pressurized breathable gas in use such that the supply of pressurized breathable gas acting on the

gusset area provides a component of a contact force F_c of the cushion on the user's face, and

wherein the mask shell, gusset portion, cushion and headgear are structured and arranged with respect to one another in use so that the force F_c is maintained in approximately constant proportion to the pressure of the supply of pressurized breathable gas, and a total force of the mask on the face F_m is maintained within a range of about 35-108 grams per gf/cm^2 pressure of the supply of pressurized breathable gas at a minimum operating pressure of the mask, without adjusting the headgear strap.

129. (Currently Amended) A mask for delivering breathable gas to a user, comprising:

a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;

a cushion provided to the mask shell and arranged to contact a user's face in use and provide a seal between the mask and the user's face;

a gusset portion provided to the cushion; and

a headgear constructed and arranged to position the mask shell relative to the user, said headgear including at least one headgear strap;

wherein the gusset portion is constructed and arranged such that it provides a component of a contact force F_c of the cushion on the user's face, the gusset portion having a configuration and shape so that, in use, the force F_c is maintained in approximately constant proportion to the pressure of the supply of pressurized breathable

gas, and a total force of the mask on the face F_m is maintained within a predetermined range to maintain the seal between the mask and the user's face, for at least a minimum operating pressure of the mask, without adjusting the headgear strap.

130-131. (Canceled)

132. (Currently Amended) A mask system pressurizable to an operating pressure, the mask system comprising:

a mask frame;

a cushion spaced a distance from the mask frame and structured to transfer a force to a face of a user; and

a gusset portion between the mask frame and the cushion, the gusset portion including a side wall having at least one of:

(1) a pressure-dependent projected area that is variable over an operating pressure range, and

(2) ~~a spring-like~~ an elastic portion with at least one of a pressure-dependent ~~and/or~~ and distance-dependent spring constant such that the force and the distance are approximately inversely proportional at a given operating pressure.

133. (Currently Amended) A mask system as claimed in claim 132, in which the side wall includes both the pressure-dependent projected area and the ~~spring-like~~ elastic portion.

134. (Previously Presented) A mask system pressurizable to an operating pressure, the mask system comprising:

a mask frame;

a cushion spaced a distance from the mask frame and structured to transfer a force to a face of a user; and

a gusset portion between the mask frame and the cushion, the gusset portion including means for establishing an approximately inversely proportional relationship between the force and the distance at a given operating pressure.

135. (Previously Presented) A mask system for delivering breathable gas to a user, comprising:

a mask shell having a portion adapted to receive a supply of pressurized breathable gas and a user side;

a gusset portion having a first side attached to the user side of the shell and having a second side;

a cushion having a first portion constructed and arranged to attach to the second side of the gusset portion and a second portion constructed and arranged to contact a user's face in use and provide a seal between the mask and the user's face; and

a headgear constructed and arranged to attach the mask shell to the user, said headgear including length adjustable headgear straps;

wherein, by selectively varying the length of the headgear straps upon initial set up of the mask system, the gusset portion is movable within a range of displacement to be set at a distance between the mask shell and the cushion, the gusset portion defining a gusset area exposed to the supply of pressurized breathable gas in use such that the

supply of pressurized breathable gas acting on the gusset area provides a component of a contact force F_c of the cushion on the user's face, and

wherein the gusset portion includes means for maintaining the force F_c , in use, to at least equal a minimum sealing force for the seal between the user and the mask at a minimum operating pressure of the mask.

136. (New) A mask system as claimed in claim 127, wherein the gusset portion defines a projected area that is variable in a radial direction according to a pressure of the supplied breathable gas over an operating pressure range.

137. (New) A mask system as claimed in claim 127, wherein the gusset portion comprises an elasticity having a spring constant that varies according to at least one of (1) a pressure of the supplied breathable gas over an operating pressure range and (2) the gusset range of displacement.

138. (New) A mask system as claimed in claim 127, wherein a maximum width of the gusset portion over an operating pressure range is greater than a width of the mask shell.

139. (New) A mask system as claimed in claim 127, wherein the cushion is directly attached to an elastic sidewall of the gusset portion.

140. (New) A mask system as claimed in claim 127, wherein an elastic sidewall of the gusset portion extends outward from the cushion.

141. (New) A mask system as claimed in claim 127, wherein the component of the contact force F_c provided by the supply of pressurized breathable gas acting on the

gusset area is sufficient to maintain the seal between the mask and the user's face without adjusting a strap tension.

142. (New) A mask system as claimed in claim 141, wherein the strap tension upon initial set up of the mask system does not exceed a value sufficient to bring the cushion in contact with the user's face.